

## A.R.E.S.

The Erie County A.R.E.S. meeting on October 11, 1994 was very well attended. We issued approximately 100 laminated photo identification cards with 75 members staying for the meeting and program. A special thank you to all the amateurs who helped with the meeting and program. We were especially pleased to have Bernie Fuller N3EFN -W.Pa. Section Manager and Bill Edgar N3LLR- E.C. for A.R.E.S. in W.Pa. inform us on A.R.E.S. current affairs in W.Pa. The program and slide presentation on hurricane Hugo in the Virgin Islands by Dave Henderson-N3EOY and Tony Zona-WB3KGT was excellent.

Thanks to all who made the effort to get their photo identification cards. A make-up day for those who were unable to make the meeting, will be announced at a later date. A final reminder the Simulated Emergency Test (S.E.T.) will be held Saturday November 12, 1994. Check into the Sunday A.R.E.S./Skywarn net at 9:30 p.m. for up-dates on the S.E.T.

73

Tom McClain N3HPR

## Warren Radio

Steve  
Tim  
Mark  
Andy

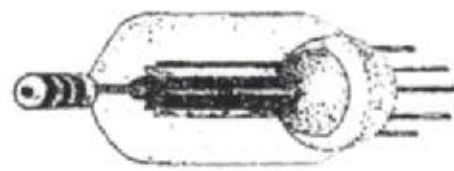
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KA3CKS  
N3LQJ  
N3NST

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**Check us out...**



## THE OFFICIAL JOURNAL OF THE RADIO ASSOCIATION OF ERIE NOVEMBER 1994 QUA RAE

The Radio Association of Erie is a non-profit club serving the tri-state area by providing emergency communication during a civil disaster, as well as providing communication support for public service events. The club meets 7:00 PM on the first Thursday of each month at the Red Cross Chapter House, 4961 Pittsburgh Avenue, Erie, PA. Membership is open to any person interested in amateur radio. For membership information, contact Bob Schwimmer, N3FAW at 866-3027. Area nets: Tri-State RACES Emergency Net is conducted weekly on 146.61 MHz Sundays at 6:30 PM; ARES/SKYWARN Net on 146.61 MHz Sundays at 9:30 PM; RAE Novice/Technician Net on 28.400 MHz Wednesday at 8:30 PM; 6 Meter AM Net Wednesday at 9:00 PM on 50.52 MHz; 10 Meter RTTY Net on Friday at 8:30 PM on 28.280 MHz.

**NEXT SCHEDULED MEETING OF R.A.E.  
7:30 PM on November 3rd, 1994  
at RED CROSS BUILDING**

Radio Association of Erie  
Post Office Box 844  
Erie, PA 16512

ADDRESS CORRECTION REQUESTED



Mem: F Lic: A  
Robert L. Schwimmer N3FAW  
129 E. Arlington Rd  
Erie PA 16509-3603

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# PRESIDENT'S CORNER

Dan Miller, K3UFG

Man oh man, it's hard to believe but here it is November already and the year is quickly coming to an end.

The PA QSO Party is now history and so far, it appears to have surpassed most others up to now ... we may not take first place, but we are sure to place higher than we have in the recent past. Looks like K3GYD Don is going to be first using medium power in the club, with Ron WB3DOM first using QRP. Our sincerest gratitude goes to Dick W3PIX and Ron WB3DOM for all their help and support in making this year's contest one of the best in our history. But let's not forget those who gave up all the honey-do's to participate ... they are the true meaning of contest ... thank you all for a tremendous club effort. If you haven't turned in your logs to Dick W3PIX yet, please do so soon -- we don't have much time left. My offer is still open: if you want your log computerized, let me know and we will sit and put it on my computer. This simplifies the paperwork and the computer does all the work.

I would like to take this opportunity to commend Tom N3HPR, Bernie Fuller N3EFN, and Bill Edgar N3LLR for the fantastic program at the recent A.R.E.S. meeting. ID cards have been a topic of discussion for as long as I can remember but thanks to their efforts, every member of A.R.E.S. in Erie County now has or can get a picture ID. If you were unable to attend, get in touch with Tom N3HPR for information on the next photo session.

As I write this column, the Jamboree On The Air is taking place and I hope to do my part this evening by manning a radio and helping some scouts earn their merit badges and show them just a taste of

amateur radio and what it is all about. Let me repeat the fact that without the youngsters getting involved now, there will be no one to replace us later. I firmly believe that we are missing the boat by not demonstrating to the student bodies in their places of education what amateur radio is and how it can play such an important role in their lives.

Our next meeting will be on Nov. 3 and as always, coffee and goodies will be served at 7 PM and the general meeting will be preceded by the election at 7:30 ... This is your club, folks, so take part in electing your officers ... after all, they represent you and what you stand for as members of the Radio Association of Erie.

Our program this month will be put on by Steve LaJohn N3SRD. He will be explaining our part in the Emergency Medical System as active amateur radio operators and the importance of each and every one of us learning CPR. As communicators at many public service events and at many accident scenes, we need to be aware of how quickly something like a heart attack can occur and what our responsibilities as well as our liabilities are.

Included in this issue of the QUA-RAE is your application for this year's Christmas Party. Please make note of it and plan on joining us. Your reservation must be made before Monday, Dec. 5.

73 for now & God Bless you all.

*Dan Miller*

Dan  
K3UFG



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### \*\*\*ELECTION\*\*\*

The annual election of officers and board members will be held at the November 3rd general meeting. The following is the list of candidates. Additional nominations can be accepted from members at the meeting.

#### PRESIDENT

N3LPO Sue Seyboldt

#### VICE PRESIDENT

W3GZO Dick Bainbridge

#### SECRETARY

KB3AAW Rich Humes  
KB3AKR Liz Salter

#### TREASURER

KB3ALT Karen McLain  
WB3KGT Tony Zona

#### BOARD MEMBERS (three positions are open)

N3BZL Cliff Craft  
WR4W Jim Salter  
KA3WYO Dennis Sharer  
WB3EZY Norm "Red" Tousey

Remember you must be a full member to qualify to vote.



## The Care & Feeding Of Nickel Cadmium Technology Batteries

By Gene Robertson

By now most of you know that the club has acquired a large number of surplus Nickel Cadmium (Ni-cd) battery packs and Dan Miller is giving them away. With all the recent interest in these batteries, I thought it would be a good time to put together an article on Ni-cd batteries and how to make the most of them. My experiences with these batteries are based upon over 15 years using these batteries in radio controlled models, and associated research.

First - A brief word of WARNING is appropriate, if misused, Ni-cd batteries can be dangerous. Do not short the batteries and it is also always a good idea to install a fuse in series with the positive lead in any pack to guard against accidental shorts. A good friend of mine installed four cells in a battery holder similar to the type sold at electronics stores. This holder had a connector on the end which mated with a 9 volt battery clip, enabling it to be removed. One day he put the holder, with the cells installed, into his pocket. As you may have guessed, some coins in the pocket shorted the pack out, causing a nasty burn on his leg and a small fire to start in his pants. To make matters worse, these batteries are capable of such high instantaneous currents that the object causing the short "welds" itself to the cell and becomes red hot. Thus it was impossible to remove the offending coin until the entire pack was ruined. Fortunately, none of the cells exploded. But still, the sight of this grown man jumping around yelling with a fire in his pocket has always caused me to treat these batteries with a great deal of respect!

Background - Each individual Ni-cd "cell" has a nominal voltage of 1.25v. These cells are available with a capacity ranging from 100 milliamp/hour (mah) to 4000 mah. Like wolves, these individual cells typically travel in "packs" which are simply cells connected in series to obtain higher voltages. Therefore, pack voltage is equal to 1.25 times the number of cells. If we are talking about a typical HT pack which has 6 cells, the total nominal voltage is about 7.5 volts.

An individual cell is completely discharged when its voltage reaches 1.1 volts. Discharging a cell beyond this point may cause damage, including cell reversal, which is why most devices like HT's have a circuit which senses low voltage and automatically shut off. Ni-cd batteries have a fairly flat discharge curve when compared to conventional batteries. A standard alkaline technology cell exhibits a uniform voltage drop as it discharges until it is fully discharged. Ni-cd cells however, start at about 1.4 volts and quickly drop to 1.25 volts where they remain for most of their useful charge, and then drop off quickly to 1.1 volts. Therefore measuring the voltage of a Ni-cd cell gives little useful information about its state of charge, until it is completely discharged.

Having discussed discharge characteristics, next comes charging. There are 4 charge rates associated with most Ni-cd cells (and packs). The first is the standard charge rate, and is found by dividing the cell capacity by 10. You will see this referred to in literature as C/10 rate as well. Thus our 700 mah HT pack example would normally be charged at 70 ma for about 12 hours. The extra two hours overcharge compensates for some of the energy lost in the charging process as heat.

The trickle charge rate is defined as the capacity of the cell divided by 50 (C/50). Since Ni-cd cells discharge a little just sitting around, this is the charge rate which maintains them at the constant charge level. In our 700 mah example, the trickle rate would be 14 ma (actually 10 ma is plenty close enough). Note however, that this rate will not increase the cell's state of charge. A half charged cell will still be half charged after a month at this rate.

The quick charge rate is defined as the cell capacity divided by 3 (C/3). This means that the completely discharged cell can be recharged in 3 hours. Again, using the 700 mah example, our quick charge rate is 233 ma for 3 hours. While most cells today are "quick charge" rated, it is always a good idea to check on the cell casing, or a manufacturers data sheet. This "quick charge" rating refers to the internal structure of the cell.

Lastly, the fast charge rate is defined as the cell capacity times 3, or 3C. This rate charges the cell in 15 minutes, and is used little in amateur radio. Fast chargers are found mainly in the radio controlled model car hobby where the car is typically run for 10 minutes and charged for 15 minutes.

Internally, each cell contains electrolyte (we'll use the technical term here - goop) which is the basis for the reversible chemical reaction allowing charging and discharging. Each cell also has a vent which allows gases created during the charging of the cell to vent. In quick charge cells, this vent is resealable. So, when the cell is quick charged and begins to overcharge, which generates heat, the cell vents and gas escapes. After the cell cools, the vent reseals preventing the goop from drying out. In non quick charge cells, the vent stays open, and the goop dries out and the cell is ruined. Look for a white powdery residue on the top of a Ni-cd cell. It is a sure sign the cell has been overcharged excessively, and its end is near.

The life expectancy of Ni-cds is measured in terms of charge/discharge cycles. Most modern cells are designed for 300-500 cycles under ideal conditions. Tune in next month to see what "ideal" conditions are, how to resurrect cells from the dead, how to properly charge Ni-cds, and how to measure their capacity.

73's

Gene, N3RKN



# CLASSIFIED ADS

**Wanted:**  
Borrow, Buy, Copy. Instruction book for Murata (MURATEK) Model M1850 fax machine.  
W13U Hank 864-9960

**For Sale:**  
Kenwood TS-520 100 watt HF rig. Tube finals, very good condition. \$350

Revox B77 10 1/2" R-R tape deck. Has 3 3/4 & 7 1/2 ips speeds. Includes several reels blank tape, used 1 hour. Mint condition \$750

Yamaha C-2 and B-2 stereo preamp and amp. 100 watts/channel, has dual inputs and speaker outputs. Also has peak reading VU meters, very good condition. \$400

N3EPU Marty 756-0829 (eves)

**For Sale:**  
KDK 2 meter mobile radio. Synthesized with 10 memories. Scan features, 5 & 12 watts output. No PL. Works great, w/book & box \$100  
N3RKN Gene 774-2090

## For Sale:

Battery Pack BP-3 for ICOM & RS HT's \$25, NiCad Battery pack for RS HT's \$25, Alkaline Pack / holder for RS & ICOM HT's \$6, Battery Separator Cable (CP-10) for RS & ICOM HT's \$10, DC-1 12v to 10v adaptor for ICOM 2AT \$10, Wall charger for ICOM & RS Batt's \$8. Sp/Mic for RS \$10.  
N3RKN Gene 774-2090

## For Sale:

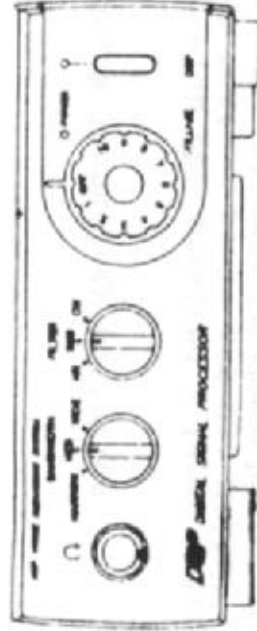
Radio Shack Hand Held Scanner 10 Channels, covers FM VHF Lo & Hi, UHF (not 800Mhz). Direct frequency entry on keyboard. Works great with box & book. \$40.00  
N3RKN Gene 774-2090

CLASSIFIED ADS ARE FREE TO ANY RADIO ASSOCIATION OF ERIE MEMBER, AND THEY REALLY WORK! IF YOU WANT TO BUY, SELL, OR TRADE ANYTHING OF USE TO OTHER HAMS, SUBMIT YOUR WRITTEN COPY TO ME - GENE N3RKN - BEFORE THE 15TH OF THE MONTH IN WHICH YOU WISH YOUR AD TO APPEAR.

NON-MEMBERS MAY ALSO ADVERTISE AT THE RATE OF \$2.00 PER MONTH IN ADVANCE TO GENE ROBERTSON, 1215 MAPLE AVE. LAKE CITY, PA 16423.

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# Volunteer Examiner's Report

The locals who upgraded at the October Villa Maria test session were William Kowalski of Erie to Technician w/HF and Gene Robertson N3RKN of Lake City, who passed General.

If you hold a Technician class license issued before March 16, 1991, then you are automatically a Technician licensee with HF privileges (a Tech Plus).

In some recent instances, the FCC has processed the renewal or modification of such a Tech Plus license, but has mistakenly issued a "Technician (no-code) license. Since June 8, 1994, new and renewed Technician Plus licenses have been clearly labeled as such. If this has happened to you, do the following:

Write to the FCC, explaining the situation, including your current license status, with effective date. Include copies of both your "before" and "after" licenses. If you no longer have either a copy or the original of your previous license, say so in your letter. Send this to:

Federal Communications Commission, 1270 Fairfield Road, Gettysburg, Pa 17325-7245 or fax 717-337-1541.

Keep copies of all your correspondence with the FCC. Expect the matter to take four to six weeks to be resolved. In the meantime, you may continue to exercise Technician w/HF privileges.

The next test session at Villa Maria, 2551 W. 12 St, will be held on Saturday, November 5, at 8 A.M.

Bring any current license, plus a copy of the license, and any current Certificate of Completion, plus a copy of the Certificate. The FCC requires that any current copies be furnished to them, and will not process the 610 form without the copies.

For any further information, contact me at (814) 665-9124.

Norma Vanderhoff, W3CG  
ARRL VE Liaison

The Novice - Tech Net Has Moved!  
Check In Wednesdays At 8:30 PM On  
\*\*\* 28.400 \*\* \*\* 28.400 \*\*\*

## SUNSPOTS SLIDE TO BOTTOM - SATELLITES FILL THE GAP!

Since the first OSCAR sent the message "HI" back in 1961, amateur radio operators around the world have been intrigued by space communications. Now in 1994, we have over a dozen amateur satellites circling the planet providing everything from two-way communications, packet store and forward message systems, to amateur television.

To get started, there are two satellites which are relatively easy to use and do not require specialized equipment to access. These are LEO's - Low Earth Orbit Satellites. These LEO's are RS-10 and RS-12. Both were carried as secondary payloads on Russian navigation satellite launches.

The uplink (your transmit) frequency and downlink (receive) frequency for each satellite are as follows:

|                    |          |                   |          |
|--------------------|----------|-------------------|----------|
| RS-10              |          | RS-12             |          |
| Beacon 29.357      |          | Beacon 29.408     |          |
| Uplink             | Downlink | Uplink            | Downlink |
| 145.860-----29.360 |          | 21.210-----29.410 |          |
| .870 CW .370       |          | CW                |          |
| 145.880-----29.380 |          | 21.225-----29.425 |          |
| .890 SSB .390      |          | SSB               |          |
| 145.900-----29.400 |          | 21.250-----29.450 |          |
| Beacon 29.403      |          | Beacon 29.454     |          |

Please note these frequencies are +/- doppler shift. The doppler effect shifts the frequency as the satellite is coming towards you, passes overhead and then travels away from you. So you will have to tune a couple Khz above or below the above beacon frequencies to find the satellite's signal.

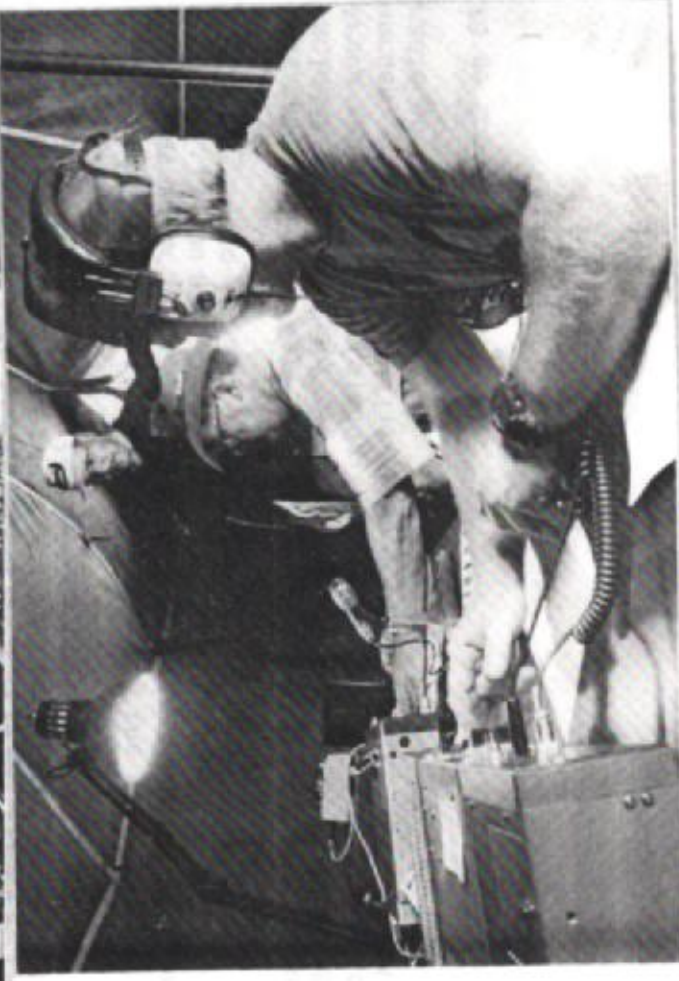
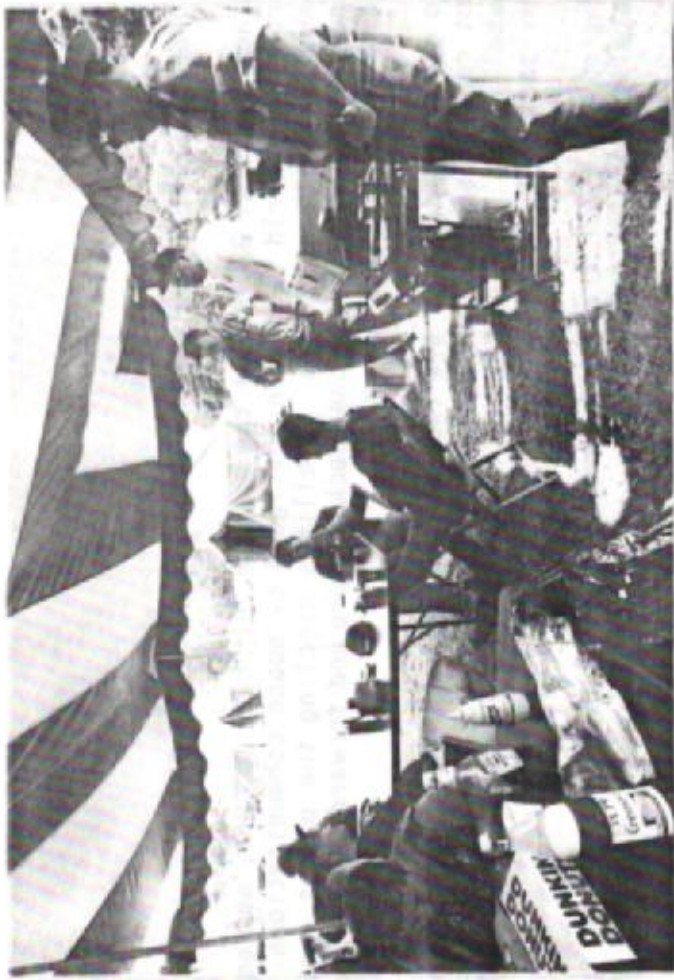
What do you need to work the "birds"? Well, it really doesn't take that much. On RS-10, I use an Yaesu FT-290R, which puts out 25 watts to a Ringo Ranger for the uplink. On the downlink, I use an Icom IC-728 with a G5RV. If your transceiver will work split, 29 Mhz/21Mhz, then your all set for RS-12. On RS-12 however, remember that transmitting on 21.210 to 21.225 will require an Extra Class license and you have to be at an Advanced to transmit on 21.225 to 21.250. (Give some serious thought to upgrading!)

The last thing you need to know, is when are the satellites in range? There are several computer programs which will help in planning your satellite operating session. If you need help, give the writer a landline, and I'll be glad to let you know when to listen.

What can you work? Well since chasing the "birds", I've worked 35 states which includes the west coast of the United States. DX includes England, Scotland, Aruba and the Virgin Islands. As band conditions continue to worsen, working the satellites may bring back that special thrill to your amateur radio operations.

73 de Bob W3BBO





# 1994 R.A.E. CHRISTMAS PARTY Reservation Application

This year's Christmas Party will be held on Sunday, December 11 at the Erie Maennerchor Club, 1607 State St. Please take the time to fill out this questionnaire so we can make the necessary arrangements. Or call with your information. We must have the information and your money before Monday, December 5.

Number Attending \_\_\_\_\_

Choices are:

\_\_\_\_\_ PRIME RIB (\$10.95)

\_\_\_\_\_ STUFFED CHICKEN BREAST (\$9.95)

\_\_\_\_\_ BROILED SCROD, HADDOCK or ORANGE ROUGHY (\$8.95)

All Entrees include choice of potato, vegetable, tossed salad, rolls, coffee or tea. Desserts available.

----- PRICES DO NOT INCLUDE TAX OR GRATUITY -----

Fill out and mail along with your check to: Dan Miller, R.A.E. Pres., 130 W. 21st St., Erie, PA 16502, or call 459-2516, or bring with you to the November monthly meeting. Thank you. Look forward to seeing you there.